UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077XC057NM

Site Name: Sandhills

Precipitation or Climate Zone: 14 to 18 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on undulating to hilly upland plains. This is normally in the form of vegetated dunes, dune barchans, dune seifs and dune whalebacks. Slopes are complex with gradients ranging from about 9 to 30 percent. The gentler slopes are normally on the windward side of whalebacks. Elevation ranges from 3,550 to 4,300 feet above sea level.

Land Form:

1. Plain
2. Dune
3.

Aspect:

1. North and east, cooler wetter
2. South and west, warmer drier
3.

	Minimum	Maximum
Elevation (feet)	3,550	4,300
Slope (percent)	9	30
Water Table Depth (inches)	N/A	N/A

Flooding:	Minimum	Maximum
Frequency	N/A	N/A
Duration	N/A	N/A

Ponding:	Minimum	Maximum
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

The climate of the area is "semi-arid continental".

The average annual precipitation ranges from 14 to 18 inches. Variations of 5 inches, more or less, are common. Approximately 85 percent of the precipitation falls from April through October. Most of the summer precipitation falls in the form of high intensity-short duration thunderstorms, often accompanied by hailstorms.

Distinct seasonal changes and large annual and diurnal temperature changes characterize temperatures. The average annual temperature is 58 to 61 degrees F with extremes of 30 degrees F below zero in the winter to 110 degrees F in the summer.

The average frost-free season is 190 to 210 days. The last killing frost being in early to mid-April and the first killing frost being in late October to early November.

Temperature and rainfall both favor warm-season perennial plant growth. Occasionally an early spring or late fall storm will occur from a prolonged front. This, along with occasional spring and fall showers, allows the cool-season component to occupy an important part of this plant community. The vegetation on this site can take advantage of the moisture at the time it falls. Because of the soil profile, little moisture can be stored for any length of time. Strong winds blow from February through May from the south, which rapidly dries out the soil during a period critical to cool-season plant growth.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	181	216
Freeze-free period (days):	203	238
Mean annual precipitation (inches):	14	18

Monthly moisture (inches) and temperature (^{0}F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	0.37	0.45	22.0	56.6
February	0.35	0.49	25.8	62.0
March	0.44	0.68	31.5	69.0
April	0.62	1.05	39.6	77.0
May	1.67	2.10	49.4	85.5
June	1.89	2.63	58.4	92.8
July	2.15	2.75	62.1	93.6
August	2.41	2.95	60.7	91.9
September	1.88	2.63	53.9	85.9
October	1.31	1.73	42.6	77.1
November	0.51	0.57	30.5	65.3
December	0.42	0.60	23.1	58.1

Climate Stations:

				Period		
Station ID	291939	Location	Clovis, New Mexico	From: 11/24/10	To:	12/31/01
Station ID	292207	Location	Crossroads #2, New Mexico	From: 07/01/29	To:	05/31/01
Station ID	292854	Location	Elida, New Mexico	From: 05/01/14	To:	12/31/01
Station ID	294026	Location	Hobbs, New Mexico	From: 01/01/14	To:	12/31/01
Station ID	295617	Location	Melrose, New Mexico	From: 04/01/14	To:	12/31/01
Station ID	297008	Location	Portales, New Mexico	From: 01/01/14	To:	12/31/01
Station ID	298713	Location	Tatum, New Mexico	From: 06/01/19	To:	12/31/01

INFLUENCING WATER FEATURES

Narrative:

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

These are excessively drained deep soils. Textures throughout the profile are typically fine sand. Permeability is rapid. The available water-holding capacity is low. The effective rooting depth is greater than 60 inches. If unprotected by plant cover and organic residues, these soils become wind blown and easily eroded resulting in unstable mobile dunes.

Parent Material Kind: Eolian sand
Parent Material Origin: Sandstone-unspecified

Surface Texture:

1. Fine sand
2.
3.

Surface Texture Modifier:

1. N/A
2.
3.

Subsurface Texture Group: Sandy
Surface Fragments <=3" (% Cover): N/A
Surface Fragments >3" (% Cover): N/A
Subsurface Fragments <=3" (%Volume): N/A
Subsurface Fragments >=3" (%Volume): N/A

	Minimum	Maximum
Drainage Class:	Excessive	Excessive
Permeability Class:	Rapid	Rapid
Depth (inches):	60	>72
Electrical Conductivity (mmhos/cm):	0.00	2.00
Sodium Absorption Ratio:	0.00	4.00
Soil Reaction (1:1 Water):	7.4	8.4
Soil Reaction (0.1M CaCl2):	N/A	N/A
Available Water Capacity (inches):	3	6
Calcium Carbonate Equivalent (percent):	N/A	N/A

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label**: HCPC

Plant Community Narrative: Historic Climax Plant Community
The aspect of the potential natural plant community of this site is that of a tall-grass prairie dominated by sand bluestem, giant sandreed, Indiangrass and little bluestem. Scattered shrubs such as small soapweed, sand plum and sand sagebrush are inconspicuous. An understory of short and mid-grasses, perennial and annual forbs is also present, fully occupying the wetted soil profile. Forb populations fluctuate widely from year to year with the amount and seasonal distribution of rainfall. Tall-grass and shrub populations are more constant and vary with longer-term moisture cycles. In general, the north and east slopes are cooler and more moist, sometimes having a few cool-season grasses and an overall denser ground cover. The south and west slopes are warmer and drier.

Canopy Cover:	
Trees	0
Shrubs and half shrubs	0 – 3 %
Ground Cover (Aveage Percent of Surface Area).	
Grasses & Forbs	25 – 30
Bare ground	5 – 15
Surface gravel	0 – 5
Surface cobble and stone	0
Litter (percent)	50 – 70
Litter (average depth in cm.)	2 – 4

Plant Community Annual Production (by plant type):

Annual Production (lbs/ac)

Plant Type	Low	RV	High
Grass/Grasslike	1,162	1,411	1,660
Forb	182	221	260
Tree/Shrub/Vine	112	136	160
Lichen			
Moss			
Microbiotic Crusts			
Total	1,400	1,700	2,000

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	ANHA	Sand Bluestem	425 – 510	425 – 510
2	SCSC	Little Bluestem	340 – 425	340 – 425
3	ARDO4	Giant Sandreed	85 – 170	85 – 170
4	SONU2	Indiangrass	51 – 85	51 – 85
5	SPGI	Giant Dropseed	51 – 85	51 – 85
6	HENE5 HECO26	New Mexico Feathergrass Needleandthread	51 – 85	51 – 85
7	PASE5 PAHA DICOA	Sand Paspalum Hall's Panicum Fall Witchgrass	51 – 85	51 – 85
8	BOHI2	Hairy Grama	51 – 85	51 – 85
9	ERSE	Red Lovegrass	51 – 85	51 – 85
10	SPCR	Sand Dropseed	51 – 85	51 – 85
11	ARIST	Threeawn spp.	51 – 85	51 – 85
12	CELO3	Field Sandbur	51 – 85	51 – 85
13	2GRAM	Other Grasses	51 – 85	51 – 85

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	PSLA3 PENST	Lemon Scurfpea Penstemon	34 – 85	34 – 85
15	PHVI5	Ground Cherry	17 – 51	17 – 51
16	GAVI2 CROTO STSY AMPS	Woolly Beeblossom (gaura) Croton spp. Queensdelight Western Ragweed	51 – 85	51 – 85
17	HEAN3	Annual Sunflower	17 – 51	17 – 51
18	ERAN4	Annual Wildbuckwheat	17 – 51	17 – 51
19	2FORB	Other Forbs	17 – 85	17 – 85

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
20	PRANW	Sand Plum	51 – 85	51 – 85
21	YUGL	Small Soapweed Yucca	51 – 85	51 – 85
22	ARFI2 QUHA	Sand Sagebrush Shinnery Oak	0 – 170	0 – 170
23	2SD	Other Shrubs	51 – 85	51 – 85

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Other grasses that could appear on this site include: tumblegrass, tumble lovegrass, gummy lovegrass, sixweeks grama, flatsedge, sideoats grama, black grama, blue grama, plains lovegrass, mesa dropseed, spike dropseed, Indian ricegrass, bottlebrush squirreltail and cane bluestem.
Other shrubs that could appear on this site include: southwestern rabbitbrush, skunkbush sumac, winterfat, ephedra, feather dalea and mesquite.
Other forbs that could appear on this site include: dotted gayfeather, woolly dalea, prairie coneflower, lemon beebalm, smooth four-o'clock, cocklebur and hairy goldenaster.

Plant Growth Curves

Growth Curve ID **5507NM**

Growth Curve Name: **HCPC**

Growth Curve Description: **Tall-grass prairie with an understory of short and mid-grasses and minor components of shrubs and forbs.**

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	3	5	5	10	25	30	15	7	0	0

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitats, which support a resident animal community that is characterized by pronghorn antelope, badger, swift fox, desert cottontail, spotted ground squirrel, hispid pocket mouse, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, ferruginous hawk, roadrunner, lesser prairie chicken, scaled quail, meadowlark, western box turtle, lesser earless lizard, round-tailed horned lizard, bullsnake and western diamondback rattlesnake.

Where large woody plants are present, scissor-tailed flycatcher, mourning dove, white-necked raven, mockingbird, western kingbird, loggerhead shrike, roadrunner, ferruginous and Swainson's hawks nest. Rock wren and ferruginous hawk occasionally nest on dunes. Bobwhite quail are sometimes associated with native plum thickets; grasshopper and vesper sparrows utilize the site during fall migration and the marsh hawk hunts during the cooler months.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series	Hydrologic Group
Milsand	A
Tivoli	A
Yikes	A

Recreational Uses:

This site offers recreation potential for hiking, horseback riding, nature observation, photography, quail and dove hunting, antelope hunting and predator hunting. The site is also attractive to dune buggying; however, this activity is destructive to the native vegetation, which stabilizes the dunes and will render them unstable. Care must be taken to confine the area of activity and control soil loss or use areas, which are already unstable and exercise adequate controls to keep them from spreading.

During years of abundant spring moisture, this site displays wildflowers in a wide spectrum of colors from May through August. A few fall-blooming flowers also occur. If moisture is confined to the summer rainy period only, the view of a virtual "sea of grass" portrayed by waves of head-high sand bluestem will be rewarding to those who appreciate a tall-grass prairie.

Wood Products:

The natural plant community of this site affords little or no wood products.

Other Products:

Grazing:

This site is suitable for grazing during all seasons of the year. It is most suitable for grazing by mature cattle due to the high composition of tall grasses and other coarse forage and browse. Sheep do not do well on this site. It will accommodate minority proportions of goats. Grazing by goats will also be of value to control brush where woody plants have increased considerably or invaded. In general, cattle grazing will result in a decrease of palatable grasses and an increase in shrubs and undesirable forbs. Continuous yearlong grazing or grazing continually during the potential growing season will result in a decrease in the vigor and abundance of sand bluestem, Indiangrass, giant sandreed, sand paspalum and little bluestem. A corresponding increase will occur in dropseeds, threeawn spp., field sandbur, shinnery oak, small soapweed yucca and weedy forbs. Eventually, these will dominate the site leaving it depleted in productivity, grazing value and vulnerable to wind erosion. Well planned systems of deferred grazing, which vary the seasons of grazing and rest in pastures during successive years, will result in a balanced plant community, providing higher-quality forage and browse during all seasons of the year.

Other Information:

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index	Ac/AUM
100 - 76	2.2 – 3.1
75 – 51	3.0 – 4.8
50 – 26	5.0 – 8.5
25 – 0	8.5+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Plant Preference by Animal Kind:

Animal Kind: Livestock
Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Sand Bluestem	Andropogon hallii	EP	D	D	D	P	P	P	P	P	P	D	D	D
Little Bluestem	Schizachyrium scoparium	EP	D	D	D	P	P	P	P	P	P	D	D	D
Giant Sandreed	Calamovilfa gigantea	EP	D	D	D	D	D	D	D	D	D	D	D	D
Indiangrass	Sorghastrum nutans	EP	D	D	D	D	D	D	D	D	D	D	D	D
Giant Dropseed	Sporobolus giganteus	EP	D	D	D	D	D	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	D	P	P	P	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	D	P	P	P	D	D	D	D	D	D
Sand Paspalum	Paspalum setaceum	EP	D	D	D	P	P	P	P	P	P	D	D	D
Gilia Penstemon	Penstemon spp.	EP	U	U	U	D	D	D	D	D	D	U	U	U
Annual Sunflower	Helianthus annuum	EP	U	U	U	U	U	U	D	D	D	U	U	U

Animal Kind: Livestock
Animal Type: Goat

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Sand Plum	Prunus angustifolia	L/S	D	D	D	D	D	D	D	D	D	D	D	D
Shinnery Oak	Quercus havardii	L/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Sand Sagebrush	Artemisia filifolia	L/S	D	D	D	D	D	D	D	D	D	D	D	D
Gilia Penstemon	Penstemon spp.	EP	U	U	U	D	D	D	D	D	D	U	U	U
Croton	Croton spp.	EP	D	D	D	D	D	D	D	D	D	D	D	D

Animal Kind: Wildlife
Animal Type: Antelope

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Gilia Penstemon	Penstemon spp.	EP	U	U	U	D	D	D	D	D	D	U	U	U
Ground Cherry	Physalis virginiana	L/S	D	D	D	D	D	D	D	D	D	D	D	D
Croton	Croton spp.	EP	D	D	D	D	D	D	D	D	D	D	D	D
Annual Wildbuckwheat	Eriogonum annuum	EP	U	U	U	D	D	D	D	D	D	U	U	U
Fall Witchgrass	Digitaria cognata	EP	D	D	D	D	D	D	D	D	D	D	D	D
Sand Paspalum	Paspalum setaceum	EP	D	D	D	P	P	P	P	P	P	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	U	U	U	D	D	D	U	U	U	D	D	D
Needleandthread	Hesperostipa comata	EP	U	U	U	D	D	D	U	U	U	D	D	D
Annual Sunflower	Helianthus annuum	EP	U	U	U	U	U	U	D	D	D	U	U	U

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites:

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:

State: **New Mexico**

County: **Chaves, Curry, De Baca, Lea, Roosevelt**

Latitude:

Longitude:

Township:

Range:

Section:

Is the type locality sensitive? **Yes** ☐ **No** ☐

General Legal Description:

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern High Plains 77 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Lea, Roosevelt & Curry.

Characteristic Soils Are:	
Milsand	Tivoli
Yikes	
Other Soils included are:	

Site Description Approval:

{PRIVATE}Author	Date	Approval	Date
Don Sylvester	06/05/80	Don Sylvester	06/05/80

Site Description Revision:

{PRIVATE}Author	Date	Approval	Date
Elizabeth Wright	02/20/03	George Chavez	2/24/03